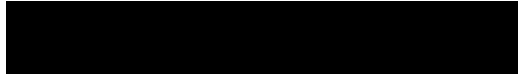


EXHIBIT H



**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

TQ DELTA, LLC,

Plaintiff,

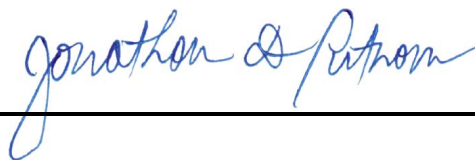
v.

COMMSCOPE HOLDING COMPANY, INC.,
COMMSCOPE INC., ARRIS INTERNATIONAL
LIMITED, ARRIS GLOBAL LTD., ARRIS US
HOLDINGS, INC., ARRIS SOLUTIONS, INC.,
ARRIS TECHNOLOGY, INC., and ARRIS
ENTERPRISES, LLC,

Defendants.

C. A. No. 2:21-cv-310

Expert Report of Jonathan D. Putnam



August 29, 2022

JONATHAN D. PUTNAM

AUGUST 29, 2022

[REDACTED]

III. SUMMARY OF OPINIONS

A. DAMAGES

19. This report reflects the damages to be paid by CommScope for infringement of TQ Delta's DSL patents. Because

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

B. SEPs vs. NON-SEPs

25. I understand that TQ Delta does not allege that some of the Asserted Patents are essential to any DSL standard (“non-SEPs”). Specifically, I understand that Family 3 and Family 9a are not “technically essential.” However, because (a) TQ Delta alleges that the other families in its portfolio are essential to DSL, (b) these non-SEP families would be licensed as part of the larger SEP portfolio, and (c) TQ Delta has pledged to license its portfolio on “reasonable” and “non-discriminatory” terms, I employ methods that value the portfolio of SEPs and non-SEPs as a whole, which is the form in which it is offered and licensed in the marketplace. Patent-by-patent valuation or family-by-family valuations are artificial impositions caused by the procedural constraints of litigation. I have, of course, complied with those procedural constraints by permitting the jury to determine damages patent-by-patent or family-by-family.

[REDACTED]

[REDACTED]

[REDACTED]

26. I observe that TQ Delta's F/RAND commitment extends only to patents that "are essential."¹⁴ Therefore, if the Family 3 and Family 9a patents are not essential to a DSL standard, then TQ Delta is not bound by any FRAND commitment.
27. I further understand that while these inventions are not technically essential to the standards, they are commercially essential. In other words, if most manufacturers implement the claimed technology, the cost to switch to a different implementation may be high. In addition, for optional parts of the standard (which I understand is the situation with the Family 2 patents), the invention's value derives from the option to use the invention, under particular circumstances.¹⁵ That option was apparently important enough commercially that CommScope exercised it and/or preserve it for its customers. Thus, as with fire extinguishers and similar options, under these facts the frequency of use does not impact the utility derived from the invention or one's willingness to pay for it.¹⁶

¹⁴ "Patent Statement and Licensing Declaration," International Telecommunication Union, June 26, 2015, p. 2. In other contexts, this definition is refined to mean patents that "are or become, and remain essential." Annex 6 – Appendix A: IPR Licensing Declaration forms. ETSI Rules of Procedure, November 19, 2014.

¹⁵

Furthermore, with some inventions, say for example a method of detecting fires, value is added simply by having the patented invention available for use. [Citing *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1080-81 (Fed. Cir. 1983)] (approving a reasonable royalty not based on "actual use of the snowmaking machinery" but on what a party would have paid to have the machine available to use). Thus, potential licensors and licensees routinely agree to royalty payments regardless of whether the invention is used frequently or infrequently by the consumer.

Id.

¹⁶ I understand that the VDSL2 functionality in Family 6 is an optional part of the standard; if a product uses G.vector with VDSL2, however, that optional functionality in

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essential to the VDSL2 standard; in Family 9b, the '348, and '809 patents are essential to G.inp; and in Family 10, the '354 and '988 patents are essential to the G.inp and VDSL2 standards.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

³¹ In the *TQ Delta v. Nokia* litigation in this court,

⁵² AWARE000246-258; Aware-002754-766; Aware-003592-604.

³³ Aware-002724-753; Aware-003562-591; AWARE000216-245.

³⁴ Aware-002705-719; Aware-003543-557; AWARE000197-211.

³⁵ AWARE001994 -996; Aware-002677-679; Aware-003515-517; AWARE000170 -172.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

³⁶ Aware-002673-676; Aware-003511-3514; AWARE000166-169.

³⁷ Aware-004084 -101; AWARE001878 -1875; AWARE000018 -035; Aware-002558 -575.

³⁸ AWARE001867 -870; AWARE000007-019.

³⁹ AWARE000003 -006; AWARE001863 -866; Aware-002543-546; Aware-004072-073.

⁴⁰ AWARE000011-017; AWARE001871-877; Aware-002551-557; Aware-004078-083.

⁴¹ AWARE000048-71; AWARE001908-931; Aware-002588-611; Aware-004113-136.

Appendices

I. ALTERNATIVE DAMAGES FOR NON-SEP FAMILIES – THE COST OF A NON-INFRINGEMENT ALTERNATIVE

A. FAMILY 9A

1. According to the book, *Fundamentals of DSL Technology*, “interleaving is typically one of the largest consumers of memory on a DSL transceiver chip. Therefore, it is critical to use the smallest possible amount of interleaver memory.”¹ The book also states that interleaver memory represents a substantial cost in DSL systems.² I understand from Dr. Cooklev that the next-best alternative to using the Family 9a “memory-sharing” inventions would have been to increase the amount of interleaver memory on the DSL processor chip.³

2. Dr. Cooklev concludes that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

¹ Golden, P., Dedieu, H. and Jacobsen, K. (2006), *Fundamentals of DSL Technology*, p. 261.

² *Id.*

³ Cooklev Report, § XII.E.

⁴ See Cooklev Report. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Should CommScope be found to not infringe Family 3, but implement interleaver/deinterleaver memory sharing by another means, my calculations remain unchanged.

[REDACTED]

4. If CommScope is found to have infringed the Family 9a patents, it should have to pay a royalty to TQ Delta that reflects the additional value generated by the Family 9a invention, in addition to the royalty it should pay for infringement of TQ Delta's essential patents.⁷ [REDACTED]

B. FAMILY 3

5. The Family 3 patents cover similar inventions as Family 9, and thus, the cost savings methodology is similar.
6. I understand from Dr. Cooklev that the next-best alternative to using the Family 3 "memory-sharing" inventions would have been to increase the amount of interleaver memory on the DSL processor chip.

[REDACTED]

⁷ Damages for Family 9a are also additive to damages for Family 3, should the Family 3 patents be found to be valid and infringed by CommScope. As I explained above, my calculation of damages for Family 9 assumes that Family 3 is implemented by CommScope, or if CommScope does not infringe Family 3, that it implements interleaver/deinterleaver memory sharing in another way. I determine the incremental cost-savings provided by the Family 9 inventions, over and above the cost-savings due to Family 3 (or an alternative implementation, if one exists), and therefore damages for Family 9 are separate from and additive to damages for Family 3, should any be awarded.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

9. I observe that the per-unit increase in cost avoided by the use of Family 3 and Family 9a is greater, in some cases significantly so, than the rate I calculate per TQ Delta SEP family. In the real world, bargaining parties do not bargain over royalty rates for

⁸ See Cookley Report, VII E.

[REDACTED]

[REDACTED]

[REDACTED]

individual patents in a portfolio, particularly when the portfolio contains a large number
of standard-essential patents.

II. COMMON ERROS IN THE ANALYSIS OF LICENSES

A. LEGAL ERRORS

1. I understand that TQ Delta has also asserted some non-SEPs against CommScope. Specifically, I understand that Family 3 and Family 9a are not technically essential to DSL standards. In addition, I understand that the Family 2 patents are not essential to a DSL standard as applicable to CommScope. However, since TQ Delta alleges that the other families in its portfolio are essential to DSL, and these non-SEP families would be licensed as part of the larger portfolio of standard-essential patents, I employ similar methods that can be used to value the portfolio as a whole. Negotiations for licenses by bargaining parties in the real-world are done at the portfolio level (especially when the portfolio contains a large number of patents); patent-by-patent valuation or family-by-family valuations are artificial impositions caused by procedural constraints of litigation. Thus, a negotiation for TQ Delta's portfolio would, in general, be encompassed by TQ Delta's FRAND obligations.
2. Particularly, if one were to insist on a separate rate for the non-SEP families, then it is worth noting that TQ Delta's F/RAND commitment extends only to patents that "are or become, and remain essential"¹ or contains claims that "are essential"². Therefore, if the Family 3 and Family 9a patents are not essential to a DSL standard, then TQ Delta is not bound by the FRAND commitment in licensing these patents and can charge a non-FRAND rate for them.

¹ Annex 6 – Appendix A: IPR Licensing Declaration forms. ETSI Rules of Procedure, November 19, 2014.

² "Patent Statement and Licensing Declaration," International Telecommunication Union, June 26, 2015, p. 2.

3. In addition, although these inventions are not technically essential to the standards, they are *commercially* essential: in other words, if most manufacturers in the industry are using the claimed technology, the cost to switch to a different method is high. In addition, for optional parts of the standard (which I understand is the situation with the Family 2 patents), the invention's value derives from the *option* to use the invention, under particular circumstances.³ Whether the invention is actually used is irrelevant; the frequency of use does not impact one's willingness to pay for the invention or the utility derived from the invention.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

5. "FRAND rates" vs. "FRAND terms and conditions"

3

Furthermore, with some inventions, say for example a method of detecting fires, value is added simply by having the patented invention available for use. [Citing *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1080-81 (Fed. Cir. 1983)] (approving a reasonable royalty not based on "actual use of the snowmaking machinery" but on what a party would have paid to have the machine available to use). Thus, potential licensors and licensees routinely agree to royalty payments regardless of whether the invention is used frequently or infrequently by the consumer.

Id.

⁴ I understand Family 9a applies to G.inp. However, Family 9b is essential to G.inp. To avoid double-counting, I do not count Family 9a as a distinct G.inp family.

6. A patent holder's FRAND commitment has been interpreted by U.S. courts as a contract of which SDO participants are third-party beneficiaries.⁵ I understand that a basic principle of contract interpretation is that contracts should be interpreted according to their "plain meaning."⁶
7. Under the ITU IPR policy, the holder of a patent essential to the standard undertakes the licensor commits license on "reasonable and non-discriminatory terms and conditions." Although the policy does not define "reasonable" or "nondiscriminatory," it is clear that "terms and conditions" stands for a plurality of contractual provisions that include financial "terms," as well as "conditions" that must be satisfied for the terms to apply. In particular, a SEP holder does not undertake to offer a "FRAND rate," despite the widespread use of that vernacular.
8. In short, a contractually defined "rate" may or may not be present within an otherwise F/RAND-compliant agreement, without prejudice to the interests of either the SEP holder or the licensee. It is therefore an error of contractual interpretation to reduce an SEP

⁵ H. Hovenkamp, "FRAND and Antitrust," *Cornell Law Review* 105(6) (2020) ("the courts have had little difficulty concluding that participating members of the SSO are third-party beneficiaries of FRAND commitments"), citing *Realtek Semiconductor Corp. v. LSI Corp.*, 946 F. Supp. 2d 998, 1005-06 (N.D. Cal. 2013) (holding that product developer was third-party beneficiary entitled to enforce FRAND obligation); *Microsoft Corp. v. Motorola, Inc.*, 864 F. Supp. 2d 1023, 1032-33 (W.D. Wash. 2012) (similar); *Apple, Inc. v. Motorola Mobility, Inc.*, 2012 WL 5416941, at *4 (W.D. Wis. Oct. 29, 2012) (similar). Available at: <https://www.cornelllawreview.org/2020/09/15/frand-and-antitrust/>.

⁶ U.S. Department of Justice, *Civil Resource Manual: 72. Principles of Contract Interpretation* ("DOJ Principles") ("Contract interpretation begins with the plain language of the contract"), citing *Gould, Inc. v. United States*, 935 F.2d 1271, 1274 (Fed. Cir. 1991); *accord Hol-Gar Mfg. Corp. v. United States*, 169 Ct. Cl. 384, 390 (1965); ("A court should first employ a 'plain meaning' analysis in any contract dispute"), citing *Aleman Food Services, Inc. v. United States*, 994 F.2d 819, 822 (Fed. Cir. 1993) (*Id.*). Available at: <https://www.justice.gov/jm/civil-resource-manual-72-principles-contract-interpretation>.